Arizona Transportation Research Center

NEWSLETTER — OCTOBER 2005

STATE PLANNING AND RESEARCH (SPR) PROJECTS

NEW PROJECTS FOR FISCAL YEAR 2006

Ten new research projects have been approved for FY2006 Federal Highway Administration funding. The list of projects is shown below.

Project No.	Title	Emphasis Area
SPR-538	*Testing of High Performance Concrete*	Structures
SPR-602	*Sampling and Analyses of Storm Water Runoff on the Red Mountain Freeway Loop 202 between Gilbert Rd. and Lindsey Rd.*	Environment
SPR-603	*Continued Evaluation of Measures to Minimize Wildlife-Vehicle Collisions & Maintain Wildlife Permeability – Kohls Ranch Section, State Route (SR) 260*	Environment
SPR-604	*Real-Time Adaptive Ramp Metering: PHASE 2– Implementation and Enhancement*	Intelligent Transportation Systems
SPR-605	*Investigations of Environmental Effects on Freeway Acoustics*	Materials & Construction
SPR-606	*Implementation of the Mechanistic-Empirical (M-E) Design Guide for Arizona*	Materials & Construction
SPR-607	*Analysis of and Recommendations for Alleviating Roadway Surface Damage Caused by Snowplow Activity.*	Maintenance
SPR-609	*Driver Education for Safety in Adverse Driving Conditions*	Planning
SPR-610	*Implementing a Statewide Rideshare Program in Arizona*	Planning
SPR-611	*Combining Statistical and Judgmental (Descriptive) Information for Accident Pattern Analysis*	Traffic & Safety

Project SPR-494, *Enhance the Pavement Management System so that It Can Determine Preventative Maintenance Strategy Effectiveness*

This study developed a system that allows evaluation of the outcomes of maintenance activities so that their cost effectiveness can be determined and used in development of pavement preservation strategies. Two training sessions were held during October 2005 to assist Arizona Department of Transportation Materials Group and Maintenance personnel in using the pavement management system (PMS).

PMS Training at ADOT Human Resources Development Center

RESEARCH IMPLEMENTATION

Project SPR-477, *Simplified Arizona Highway Cost Allocation Model*

A highway cost allocation study is an effort to match the expenditures made to the user taxes paid by each vehicle class. This project succeeded in developing a simplified highway cost allocation model that provided reasonable estimates of cost responsibility ratios. The simplified model uses readily available data and can be implemented by state transportation departments without the assistance of external consultants. Completed in 2001 at a cost of under $30,000, this study was considerably less expensive than traditional cost allocation studies. ADOT's first highway cost allocation study, completed in 1993, cost $180,000.

ADOT's Financial Management Services Section currently owns and operates the model. Outputs from this model were used in a follow on study, SPR-528, *Estimating the Cost of Overweight Vehicle Travel on Arizona Highways*. The model indicated that there is an estimated $65 million/year shortfall in revenues collected compared to costs incurred to accommodate travel by the heaviest vehicle class (i.e., trucks 75,000 lbs. and over).

The data from the model and the recently completed SPR-528 study support the idea that more revenues need to be obtained from heavier vehicles using Arizona roadways.

Project SPR-608, *Development of Rational Pay Factors Based on Concrete Compressive Strength Data*

This small budget project was recently approved by the Research Council. The study will be aimed at establishing clear target values that define the pavement quality for which the State Highway Agency is willing to pay 100 percent of the contractor bid price. Included in the study will be an investigation of applicability of new software codes which are used to make potential contractors fully aware of the pay adjustments prior to bidding a project. The research will also evaluate the applicability of the test methods to concrete materials with properties different than the conventional concrete materials, e.g., high fly ash, high strength, permeability criteria, etc.

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